

WHAT IS CLAIMED IS:

1. An apparatus for scarifying an interior surface of a sewer pipe, comprising:

(a) a vehicle moveable along an interior of said pipe; and

(b) a fluid nozzle assembly connected to said vehicle, said fluid nozzle assembly mounted to a rotating or oscillating mechanism and coupled to an external source of fluid, said fluid nozzle assembly having at least one branch and a fluid nozzle coupled to a distal end of said one branch, said fluid nozzle positioned proximate the interior surface of said pipe, said fluid nozzle assembly being operative to rotate or oscillate and to emit a jet of fluid from said fluid nozzle against the interior surface of said sewer pipe and to scarify the interior surface of said pipe as said vehicle moves along the sewer pipe.

2. The apparatus according to claim 1, wherein said one branch is extendible.

3. The apparatus according to claim 2, wherein the extendibility of said one branch is provided by making said one branch replaceable with a branch of a different length.
- 5 4. The apparatus according to claim 2, wherein the extendibility of said one branch is provided by making said one branch in sections and adding or removing one or more sections.
- 10 5. The apparatus according to claim 1, wherein said one branch is coupled to an exchanger which couples fluid to said one branch and rotates or oscillates.
6. The apparatus according to claim 2, wherein said one branch has a counterweight coupled to said exchanger.
- 15 7. The apparatus according to claim 3, wherein said counterweight is a non-fluid conducting branch extending out from said exchanger on a side opposite to said one branch.
8. An apparatus for scarifying an interior surface of a sewer pipe, comprising:

(a) a vehicle moveable along an interior of said pipe; and

(b) a fluid nozzle assembly connected to said vehicle, said fluid nozzle assembly having an exchanger coupled to an external source of pressurized fluid, a plurality of branches coupled to said exchanger, and a fluid nozzle coupled to a distal end of each of said branches, said branches spaced so that each branch is counterbalanced by one or more other branches of said plurality of branches, said fluid nozzles positioned proximate the interior surface of said pipe, said fluid nozzle assembly being operative to rotate or oscillate and to emit jets of fluid from said fluid nozzles against the interior surface of said sewer pipe and to scarify the interior surface of said pipe as said vehicle moves along the interior of said pipe.

9. The apparatus according to claim 8, wherein each branch of said plurality of branches is extendible.

20 10. The apparatus according to claim 8, wherein each branch of said plurality of branches has a fluid nozzle at an end thereof.

11. The apparatus according to claim 9, wherein
extendibility of each branch of said plurality of
branches includes each branch being replaceable with a
branch of another length.

5 12. An apparatus according to claim 8, wherein said
vehicle comprises:

- 10 (a) a chassis operative to support said fluid nozzle
assembly, said chassis being adjustable to
accommodate various pipe sizes and having a track
assembly operative upon rotation to propel said
vehicle along a longitudinal direction in the
interior of said pipe;
- 15 (b) a motor mounted on said chassis and coupled to
said track assembly, said motor operative to rotate
said track assembly; and
- (c) a power coupler mounted on said chassis and
couplable to a power source, said power coupler
operative to conduct power to said power source.

20 13. An apparatus according to claim 8, wherein said
vehicle comprises:

a chassis operative to support said apparatus,
said chassis being adjustable to accommodate various
pipe sizes and having a track assembly operative
upon rotation to propel said vehicle along a
5 longitudinal direction in the interior of said pipe;

said vehicle being passive and moveable by an external
driving force, said driving force being one of
mechanical and human powered.

14. An apparatus according to claim 12, wherein said
10 power coupler is couplable to one of a pressurized
source of hydraulic fluid and an electric power source.

15. An apparatus according to claim 14, wherein said
electric power source is located in one of an on-board
location affixed to said vehicle and an off-board
15 location remote from said vehicle.

16. An apparatus according to claim 12, further
comprising an appliance which is one of mechanical,
electromechanical and electric, said appliance being
operative to enable selection of a speed and a
20 direction of motion of said vehicle by controlling said
power coupler and said motor in response to user input,

which user input is applied to said appliance from one of a direct source and a remote source.

17. An apparatus according to claim 8, wherein said exchanger is further operative to use energy from said pressurized fluid to move said scarifying system with respect to said vehicle.

18. An apparatus according to claim 17, wherein said exchanger is operative to move said scarifying system in one of an oscillatory manner, a fully rotational manner, and a combination of oscillatory and fully rotational manners.

19. An apparatus according to claim 12, wherein said vehicle further comprises a plurality of guiding bars affixed to said chassis at one end and having wall engaging attachments on a distal end thereof, said wall engaging attachments operative to move along an interior surface of said pipe and maintain orientation of said vehicle along a longitudinal axis of said pipe.

20. An apparatus according to claim 19, wherein said guiding bars are adjustable so as to extend from said vehicle to the interior surface of said pipe.